

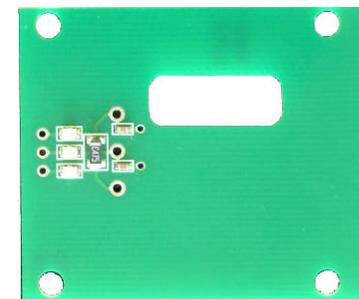
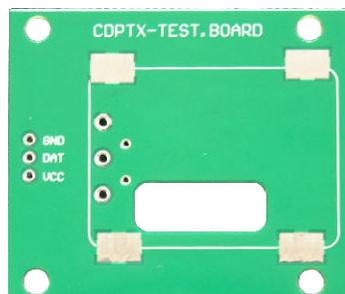
Design guide for RF transmitter and receiver (CDP-TX-02N & RX-02N)

The following problems generally apply to radio modules

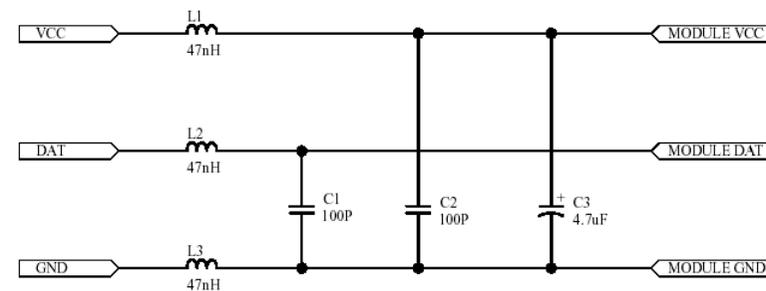
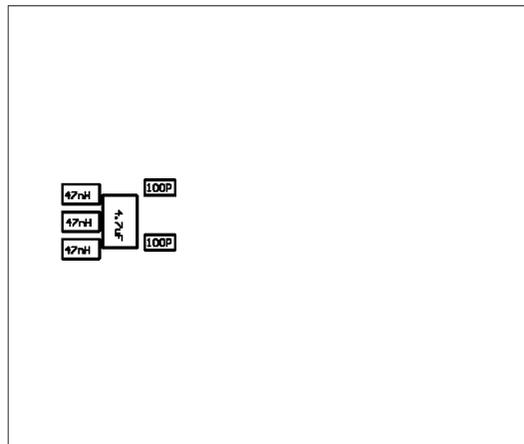
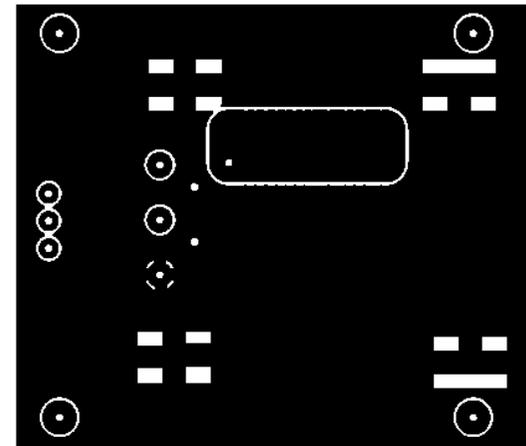
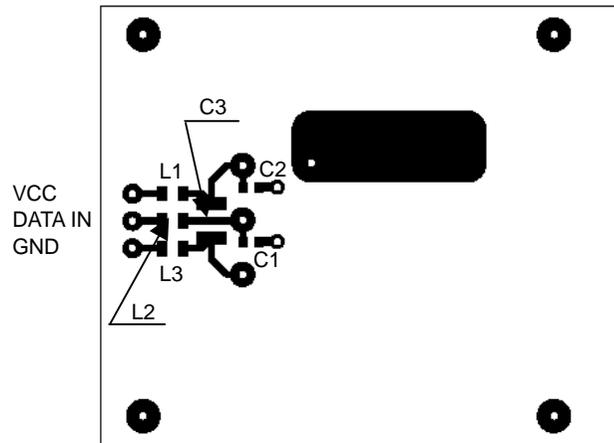
Problem	Solution
Touching or moving the antenna changes its impedance, which causes variations in emission power. The variation appears as distortion in the modulating signal and causes communication errors.	Fix the position of the antenna to avoid moving it. Positioning of the antenna is an important factor in operating the radio module efficiently.
If a change in the circuit length occurs due to the on/off of switch etc. in the electronic circuit connected to the radio module in the system in which the radio module is integrated, the high frequency electric potential can vary, disturbing the modulating signal, leading to communication errors.	Add bypass capacitors of 100 to 470 pF in the immediate vicinity of the switches. Make the area beneath the radio module a ground pattern, utilizing part of the shield.
If the power line and/or the signal input line are long the printed line can be subject to high frequency noise. This noise may cause communication errors.	Block high frequency elements by adding a choke coil to each line.
Circuit Design's receivers are designed to be vibration resistant. However there is a limit to the amount of shock and vibration the module can sustain due to its construction.	In order to fix the receiver to the PCB strongly, solder the case to the PCB. When using a radio receiver where vibration is always present, use a shock absorber or fix the PCB at the vicinity of the four corners of the receiver module in addition to fixing the four corners of the PCB on which the radio module is mounted.
Circuit Design's receivers are designed for high sensitivity. They will obtain radio signals over long distances. On the other hand, the receiver is sensitive to noise from the microcomputer and surrounding digital circuits due to its high sensitivity.	Make the area beneath the radio module a ground pattern, utilizing part of the shield. Block high frequency elements by adding a choke coil to each line.

A PCB example built for CDP-TX-02N taking into consideration the above points is shown below.

Model No. RPB-T02N-1



Example of PCB pattern



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